What is claimed is:

CLAIMS

1. An isolated, enriched or purified nucleic acid molecule encoding AUR1 and/or AUR2 polypeptide.

2. The nucleic acid molecule of claim 1, wherein said nucleic acid molecule comprises a nucleotide sequence that:

(a) encodes a polypeptide having the full length amino acid sequence set forth in SEQ ID NO:3 or SEQ ID NO:4;

(b) is the complement of the nucleotide sequence of (a);

(c) hybridizes under highly stringent conditions to the nucleotide molecule of (a) and encodes a naturally occurring AUR1 and/or AUR2 polypeptide;

(d) encodes AUR1 and/or AUR2 polypeptide having the full length amino acid sequence of SEQ ID NO:3 or SEQ ID NO:4 except that it lacks one or more of the following segments of amino acid residues: 1-73, 74-271, or 272-344 of SEQ ID NO:3, or 1-129, 130-274, or 275-403 of SEQ ID NO:4;

(e) is the complement of the nucleotide sequence of (d);

(f) encodes a polypeptide having the amino acid sequence set forth in SEQ ID NO:3 or SEQ ID NO:4 from amino acid residues 1-73, 74-271, or 272-344 of SEQ ID NO:3, or 1-129, 130-274, or 275-403 of SEQ ID NO:4;

(g) is the complement of the nucleotide sequence of (f);

(h) encodes a polypeptide having the full length amino acid sequence set forth in SEQ ID NO:3 or SEQ ID NO:4 except that it lacks one or more of the domains selected from the group consisting of a C-terminal domain, a catalytic domain, and an N-terminal domain; or

(i) is the complement of the nucleotide sequence of (h).

3. The nucleic acid molecule of claim 1, further comprising a vector or promoter effective to initiate transcription in a host cell.

4. The nucleic acid molecule of claim 1 or claim 2, wherein said nucleic acid molecule is isolated, enriched, or purified from a mammal.

5. The nucleic acid molecule of claim 4, wherein said nucleic acid molecule is isolated, enriched, or purified from a human.

6. A nucleic acid probe for the detection of nucleic acid encoding AUR1 and/or AUR2 polypeptide in a sample.

7. The probe of claim 6, wherein said polypeptide is a fragment of the protein encoded by the full length amino acid sequence set forth in SEQ ID NO:3 or SEQ ID NO:4.

8. A recombinant cell comprising a nucleic acid molecule encoding AUR1 and/or AUR2 polypeptide.

9. The cell of claim 8, wherein said polypeptide is a fragment of the protein encoded by the full length amino acid sequence set forth in SEQ ID NO:3 or SEQ ID NO:4.

10. An isolated, enriched, or purified AUR1 or AUR2 polypeptide.

11. The polypeptide of claim 10, wherein said polypeptide is a fragment of the protein encoded by the full length amino acid sequence set forth in SEQ ID NO:3 or SEQ ID NO:4.

12. The polypeptide of claim 10, wherein said polypeptide comprises an amino acid sequence having

(a) the full length amino acid sequence set forth in SEQ ID NO:3 or SEQ ID NO:4;

(b) the full length amino acid sequence set forth in SEQ ID NO:3 or SEQ ID NO:4 except that it lacks one or more of the following segments of amino acid residues: 1-73, 74-271, or 272-344 of SEQ ID NO:3, or 1-129, 130-274, or 275-403 of SEQ ID NO:4;

(c) the amino acid sequence set forth in SEQ ID NO:3 or SEQ ID NO:4 from amino acid residues 1-73, 74-271, or 272-344 of SEQ ID NO:3, or 1-129, 130-274, or 275-403 of SEQ ID NO:4; or

(d) the full length amino acid sequence set forth in SEQ ID NO:3 or SEQ ID NO:4 except that it lacks one or more of the domains selected from the group consisting of a C-terminal domain, a catalytic domain, and an N-terminal domain.

13. The AUR1 or AUR2 polypeptide of claim 10, wherein said polypeptide is isolated, purified, or enriched from a mammal.

14. The AUR1 or AUR2 polypeptide of claim 13, wherein said polypeptide is isolated, purified, or enriched from a human.

15. The AUR1 or AUR2 polypeptide of claim 10, wherein said polypeptide is an AUR1 polypeptide.

16. The AUR1 or AUR2 polypeptide of claim 10, wherein said polypeptide is an AUR2 polypeptide.

17. An antibody or antibody fragment having specific binding affinity to AUR1 and/or AUR2 polypeptide or AUR1 and/or AUR2 domain polypeptide.

18. A hybridoma which produces an antibody having specific binding affinity to an AUR1 and/or AUR2 polypeptide.

19. A method for identifying a substance that modulates AUR1 and/or AUR2 activity comprising the steps of:

(a) contacting AUR1 and/or AUR2 polypeptide with a test substance;

(b) measuring the activity of said polypeptide; and

(c) determining whether said substance modulates the activity of said polypeptide.

20. A method for identifying a substance that modulates AUR1 and/or AUR2 activity in a cell comprising the steps of:

(a) expressing AUR1 and/or AUR2 polypeptide in a cell;

(b) adding a test substance to said cell; and

(c) monitoring a change in cell phenotype or the interaction between AUR1 and/or AUR2 polypeptide and a natural binding partner.

21. A method of treating disease by administering to a patient in need of such treatment a substance that modulates the activity of AUR1 and/or AUR2.

22. The method of claim 21, wherein said disease is selected from the group consisting of colon, breast, renal, ovarian, bladder, head and neck cancers, and gliomas, medulloblastomas, chondrosarcomas, and pancreatic tumors.

23. The method of claim 21, wherein said disease is selected from the group consisting of colon, breast and renal cancer.

24. The method of claim 21, wherein said substance is an antisense oligonucleotide selected from the group consisting of: SEQ ID NO:30, SEQ ID NO: 31, and SEQ ID NO:32.

25. The method of claim 21, wherein said substance is a protein kinase inhibitor.

26. A method for detection of AUR1 and/or AUR2 in a sample as a diagnostic tool for diseases comprising the steps of:

(a) contacting said sample with a nucleic acid probe which hybridizes under hybridization assay conditions to a nucleic acid target region of aur1 and/or aur2, said probe comprising the nucleic acid sequence encoding AUR1 and/or AUR2 polypeptide, fragments thereof, and the complements of said sequences and fragments; and

(b) detecting the presence or amount of the probe:target region hybrid as an indication of said disease.

27. The method of claim 25, wherein said disease is colon cancer.

28. An antisense oligonucleotide comprised of a nucleotide base sequence selected from the group consisting of SEQ ID NO:30, SEQ ID NO:31, and SEQ ID NO:32.